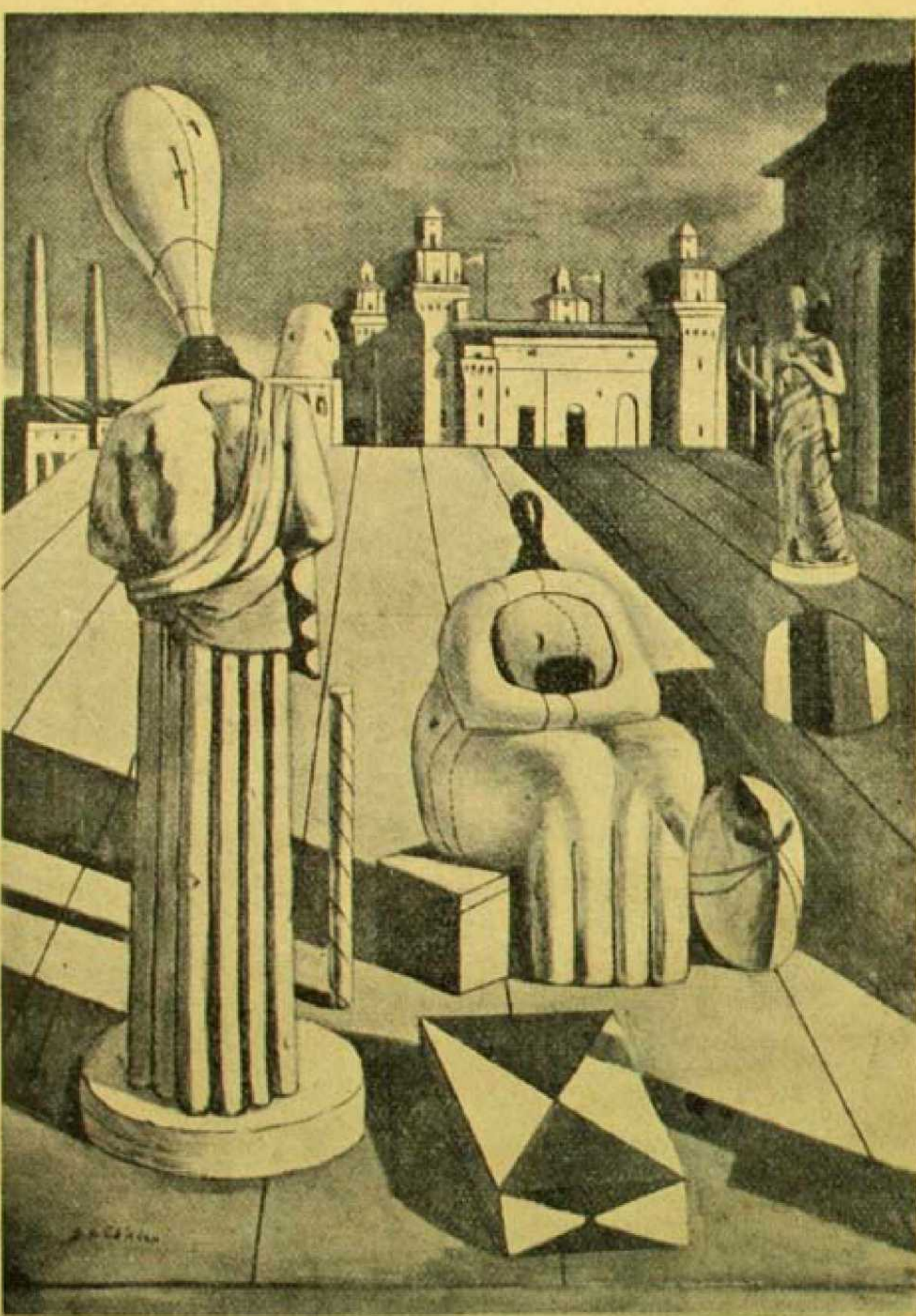
MUSEUM STUDIES



The disquieting Muses
CHIRICO

MUSEUM STUDIES

By
AJIT MOOKERJEE

With a foreword by
Dr. SYAMAPRASAD MOOKERJEE

PUBLISHED BY THE
UNIVERSITY OF CALCUTTA
1945

By the same author
FOLK ART OF BENGAL
(Revised and enlarged edition)

Forthcoming books
INDIAN ART IN INDUSTRY
20TH CENTURY ART

DEDICATED

TO

Dr. R. E. MORTIMER WHEELER

Founder : Indian School of Field Archæology

BCU 3416

GS 3614

PRINTED IN INDIA : Printed by Gurudas Bose at the
Prabartak Printing & Halftone Ltd. : Calcutta.

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FOREWORD

The Museums Movement in the west although of recent origin, have made rapid strides lately. As instruments of visual education Museums in America and Europe have come to occupy the foremost place in public life. They have been integrated in the educational system of the countries themselves. Different categories of Museums have been devised to serve varying needs and purposes.

State patronage and enthusiastic public response are at the root of the phenomenal growth of museums and development of their multifarious activities. The present undeveloped condition of museums in India, not to speak of their ridiculously low number, is not a little due to apathy of the State and an unresponsive public.

It is high time that museums in India should cease to be treated as mere "store-houses of the dead" or "curio-palaces"; they should be improved, over-hauled and planned in a manner so that they may properly discharge their vital functions as true repositories of knowledge and beauty. In this connection, it is certainly a matter of gratification that the Asutosh Museum of Indian Art, Calcutta University is the first educational institution in India to develop after the advanced ideals of a modern upto-date museum

The writer of this handbook has been an enthusiastic student of Indian Art and was sent abroad for special training by the University. I have every hope this handbook will stimulate a greater interest in this much neglected study of Museology. Methods by which museums in the west have been brought into close co-operation with the educational system are no less thought provoking than problems of storage, preservation and effective display.

Syamaprasad Mookerjee

PREFACE

During the last few years I was fortunate to visit most of the museums in India, Burma and Ceylon and some of the well-known museums of the West. There is every reason to believe that our museums, through years of misuse and misguidance, have fallen out of phase, if not out of date. Now-a-days there is little excuse for remaining ignorant. It is hoped that these chapters of short studies, though far from complete, will give a representative picture of the activities of modern museums on one hand and suggest lines of improvement of our museum gallaries in every direction on the other.

A. M.

I

PROBLEMS OF INDIAN MUSEUMS

> *The National Museums and Galleries have long been treated as the Cinderella of the social services. The whirligig of time has curiously revenged itself upon them. They began by being the first educational institutions which the Government thought proper to assist, they are now the last. Yet without them the educational fabric of the state would be quite incomplete. To the scholar they afford the indispensable material for study in almost every domain of learning ; to the artist inspiration, and to industry, the resources of science ; to the school child they present the outward and visible explanation of what he has been taught in books. to the general public they offer edification and instruction.*
>
> —*The Royal Commission on Museums and Art Galleries.*

Indian Archæology has already completed a century of its existence. But unfortunately there are only 107 museums in a land of 1,575,000 square miles, and our archæological galleries, far from serving their purposes, have remained a standing insult to one of the greatest phases of art the world has ever seen. Resources which are equal in richness and variety to those of any other country are to be found here, and yet they are not used as they could and should be used in the cause of popular education.

These pages aim at showing how the present position has been reached at describing a few typical methods by which museums in some other countries have been brought into close co-operation with the public educational system.

A few observations in the history of museums in India will throw some light on the present condition and may perhaps suggest in what directions improvement should be made.

As a result of excavation works carried out by the Archæological Survey of India, many of our provincial and site museums came into existence.

But unfortunately they were organised without any proper thought and not a few developed as godowns of heaps of antiquities without requisite ideas about planning and preservation. With certain important exceptions, they failed to serve the needs either of research or of popular education. In some of them articles of potential value were left in miserable condition and in danger of falling into decay. Besides these, scarcely any care was taken by the authorities concerned to have the objects grouped and arranged scientifically and to display them in suitable pedestals and show-cases with proper labelling.

To assist the visitor to an intelligent comprehension of what he sees, museum authorities did not generally provide popular guide books especially in Indian languages and lectures by trained guides. Throughout the year a crowd of visitors can always be found wandering from one gallery to another without comprehensing the significance of the objects.

Naturally to many of the visitors the Archæological Galleries of the public museums appear uninteresting and boring. A few learned folk might gather there to look at the objects with discerning eyes, some of the general public might go there to gaze at the memorials of a long forgotten past, and to wonder at the strange things they see or stare at the mummies, but to the majority, the whole thing is as dry as the mummies themselves.

It should be noted that there was no educational purpose in view when our museum collections were assembled ; their educational function, though, was natural and obvious one.

II

MODERN MOVEMENT

> *All the great revolutions in men's lives are made in thought. When a change takes place in man's thought, action follows the direction of thought as a ship follows the direction given by its rudder—Tolstoy*

In the West, a "museums movement" has scientifically started at the beginning of this century and especially since the World War I, marking a landmark in the development of museums. The museums are undergoing a process of rationalisation and thus gradual changes are enabling them to adapt themselves to modern requirements.

This modern "museums movement" seems to have two clear objects : one being external, other internal.

Externally the museums are ceasing to be isolated units. They have started specializing and accordingly those objects which are found to be beyond the sphere of a particular museum are sent to other institutions where they would be more appropriate. Thus the problem of congestion is solved by attacking its very source. Arrangements for the loan of exhibits to other museums and to educational institutions have been encouraged ; they not only help to prevent the stagnation which leads inevitably to the loss of local support and interest but aim at federating the public museums of the country into an organised unit. This movement demands that each separate unit will have a definite function and co-operate regularly with other units in the course of public educational system.

Internally the museums are taking special notice of the problems of storage, preservation, and effective display. Skilful spacing of the exhibits, with clear labels, and the use of maps and models together with a systematical arrangement of the whole collection have definitely caused a transformation of the modern museums.

In illustrating different subjects, the museums are using realistic backgrounds and lifelike models. By displaying costume, furniture, utensils, etc., in their natural settings it is found that both the school children and the public are able to grasp their significance more easily. But such display requires more space and it is made possible partly by disposing of all unsuitable exhibits and partly by displaying only those objects which interest the general public. The other exhibits which may be of use only to the research workers are brought out when required.

The last few years have seen the development of a movement which clearly sets up the possibility of a new type of co-operation between the rural educational institutions and the museums in their mutual interests. By this, while the museums open up a new line of work of its own in circulating their collections of exhibits to the schools by the encouragement of 'regional surveys', the seeds of curiosity and investigation are sown in the minds of the students who try to keep a record of all they can discover about the past and present resources of the locality immediately around their institutions.

It is desirable, before mentioning the various possible methods of co-operation between the museums and the public institutions as well as public life, to describe briefly certain methods already in actual operation in other countries. The few interesting examples-put herein merit special attention, as many of us seem to have very little knowledge in this matter.

III

AMERICAN MUSEUMS

No city is great unless it rests the eye, feeds the intellect and leads its people out of the bondage of the commonplace—George Washinton Stevens

Of the 1,500 museums in U. S. A. nearly 800 are public; more than 400 of these are History Museums; about 170 are Art Museums and 125 are Science Museums; 24 Industrial Musems and 50 General Museums. About 600 museums in the United States are owned by the Universities, Colleges and Schools (Nag: Art and Archæology Abroad, p. 65). Even during the world economic depression, America found "one new museum every fortnight which is slightly higher than the average rate for the past 10 years or one museum every 16 days."

Many do not depend upon public funds; voluntary subscriptions and private benefactions are almost always the sources of aid. All have been deliberately created as auxiliaries to the educational system of the country. A regular system of loans and exchanges links them with one another and with the national collections and thus staleness and stagnation are conspicuous by their absence even in the smallest museum of the country.

The classification of subjects is so arranged that the various aspects of a subject, as for instance dressing, can be illustrated in different ways. Its history may be treated by specimens, its workmanship by photography and its style by lantern slides or films.

Teachers of public educational institutions arrange, under the guidance of the museum authorities, programmes of museological studies. The class-work of a museum laboratory is particularly interesting because the students themselves become active by handling objects, making drawings, etc. At the Museum of Natural History, for example, they make different objects associated with animal and vegetable life. Thus the museums begin their contact early, teaching elementary school children fundamentals of art through such media as finger painting. They continue to inspire and educate students through schools and colleges ; help merchants and manufacturers with their problems of design. The modern American museum provides all the features of a well-worked laboratory and has become a people's university.

IV

GREAT BRITAIN

Art is the most effective mode of communication that exists—John Dewey

The examples of America have considerably influenced the arrangements and organizations of British museums. The London County Council circulates regularly booklets with full information about educational visits to the various museums, and arrange special classes for pupils. Besides given instruction at the museum, the curators also visit educational institutions to impart weekly lessons in museum studies to the students. Some of the museums' geological and historical collections are arranged on the "space for time" principle. The museums apart from encouraging visits of parties of students with their teachers, for whom the museum staff act as guide lecturers, when necessary, prepare sets of exhibits designed to illustrate the usual subjects of study for circulation to various educational institutions.

Teachers selected from various schools and colleges attend lectures given by recognised authorities at the museums. The courses include field work and cover a period of one year or two for the study of museology. The museum staff prepares, for circulation in the schools and colleges, portable cases of exhibits which are accompanied by labels and notes for the use of teachers.

Each year, in a conference between teachers, educational officials, and the museum staff, one or two subjects to be specially studied during the coming year are selected. For these teachers who have already specialized co-operate with the museum authorities in preparing museum lectures.

Other groups of teachers receive printed summaries in pamphlet form, and the loan of the slides by turn. These arrangements resemble those so common in America : the specialist teachers doing full-time work in the museums ; while retaining their employment at their respective educational institutions and also being paid by them.

Besides the above special arrangements for the benefit of educational institutions, the Museums Association of Great Britain are taking necessary steps for museum training and popularising museums in a scientific way among the general public.

V

U. S. S. R.

Art belongs to the people, its roots should penetrate deeply into the very thick of the masses of the people. It should be comprehensible to these masses and loved by them. It should unite the emotions, thoughts and will of these masses and arouse them—Lenin

After the Revolution the museums were thrown open to the masses, who had hardly had the opportunity or inducement to visit them before. They were taught how to see and appreciate museum objects. Their leaders did not wait for them to come of themselves, but displayed art right before their very eyes. The work of the artists' associations in towns and villages has wrought miracles in this respect. To-day museums and picture galleries are always full, and on days of leisure they are overcrowded.

The opening of special exhibitions in art and archæology loses, as a result of this endeavour, the snobish character and patronising spirit of the bourgeoisie. Pictures and statues are to the Soviet citizen visible and concrete results of cultural activity. Every object in the museum is his own property : it enriches his country and his environment.

What is the method of moulding public opinion and taste in art appreciation in the Soviet Union ? Let us suppose that a new gallery is going to be opened. A delegation of workmen and experts is invited to express its opinion. In addition to them and the special art correspondent of the news papers, the artists are, of course, admitted. This mixed commission compares notes, reaches a decision, and then comes before the committee of the gallery, consisting of the director and his scientific assistants. The results of the expert consultation and official opinion are recapilulated and laid before the Central Art Committee (C. A. C.) which decides if changes are to be made in planning and arrangement of the gallery.

While the gallery is open, a book is available in which all visitors can, if they wish, write down their criticisms. These opinions of the general public are very important in the eyes of the specialists ; in fact, no one who visits any institution of interest can resist the friendly invitation extended to him to write down his or her impression of the visit.

Soviet authorities, thus, with the active support and sympathy of the people, exert all efforts to increase and improve the museums of the country so as to react the highest standards of popular utility and effectiveness.

Both the pre-revolutionary and the newly established museums have acquired valuable exhibits during the twenty-five years of Soviet regime. Many of these exhibits were discovered and collected by school children, students, teachers, workers and peasants, who actuated by the love for their country, present their valuable finds to the museum. Museums receive packages and letters from hundreds of people who regard it as their duty to present to the state their valuable private collections, manuscripts, rare books and engravings This strikingly testifies to the high respect the citizens of the Soviet Union entertain for cultural achievements.

One of the most interesting of the Soviet museums is the "Museum of the Peoples of the U. S. S. R." Each of the exhibits in this museum bears witness to the friendship among the people of the Soviet Union with their diverse social and cultural characteristics. The exhibition room devoted to the old and new life of the people of Central Asia is particularly impressive. The exhibits, documents and diagrams here illustrate the social, economic and political changes which have taken place in the lives of the people of the U. S. S. R.

There has been a particularly great increase in the number of science museums in the Soviet Union. Some of them have won world fame ; for instance, the Museum of Anthropology attached to the Brain Institute, the Museum of the Protection of Mother & Child, the Arctic Museum and the Polytechnical Museum. Foreign scientists often consult these museums on problems within the scope of the museums' investigations.

A number of museums and regional exhibitions have also been organized in the agricultural as well as industrial collective farms. In the district museums the visitor may become acquainted with the flora and fauna, natural resources and productive forces of the district, as well as with the history of the place in which the museum is located, the development of industry and agriculture and the local folk art and craftsmanship.

The Leningrad Hermitage arranges loan exhibitions in various cities of the Soviet Union regularly, and the staff of the Hermitage Museum conducts extensive educational work among the population.

The people of the Soviet Union value and respect the treasures and achievements of world culture. The museums have opened the minds of millions to history, art and science, putting before them the entire cultural heritage of mankind.

VI

FOLK MUSEUMS

The art itself is nature—Froebel

A type of museum still unfamiliar in our country is the "Folk-Museum" which can be seen often in continental countries. These museums have a great educational value and are of wide interest. Good examples of such museums are found in the Lingby Museum (Denmark), Skansen (Sweden), Arnhem (Holland), and the Deutsches Museum (Munich).

These consist of transplanted cottages, wind mills, water mills, smithies, etc., which have been erected in open air, either singly or in village groups, and fitted with appropriate village furniture, tools etc., thus affording an opportunity to be studied in their proper setting. Vast ideas that mark an epoch-making evolution in museums as instruments of popular education characterize the Deutsches Museum at Munich, which has devoted itself solely to Applied Science. In the Deutsches Museum the visitors can make, with his own hands, experiments which deal with some of the fundamental principles of science and their application to art and industry. Besides the usual handbooks, the museum authorities bring out pamphlets specially written in a simple language containing practical hints for the guidance of such visitors. All the resources and experience of the museum authorities are placed before the public freely for their use. Similarly at Skansen, there is an indoor exhibition of the past social life of Scandinavia. Such museums have preserved from complete extinction the memorials of the arts, crafts and home life of the village people. In some parts of Europe, the students have been invited to assist in collecting for such museums old utensils, furniture, costumes, dolls and toys, etc. These objects of bygone days are fast disappearing under the pressure of social and economical changes ; meanwhile it is right that each country should value and preserve every garment woven for the ingenious spirit of man for various reasons, especially educational.

To promote a widespread interest in folk-art and folk-lore, the International Institute of Intellectual Co-operation has undertaken a great enterprise. Bureau of the International Commitee on Folk Arts keep information about international collections. A comparative study of the different modes of recording folk-songs and the determination of the principles underlying such recordings, have also been undertaken with a view to facilitate scientific investigations.

There are three mechanical means adopted for the recording of folk-music, viz., (1) the sound film ; (2) the gramophone disc ; and (3) phonograph cylinder. The Institute's Department of Art has also undertaken to assemble materials used for the recording purposes.

Lastly, the cinematographic recording of the traditional technique still employed by the present-day artisan is a matter that is being studied in collaboration with the Bureau of the International Committee on Folk Arts. The importance of the use of the cinematograph in this field has universally been recognized.

paints gradually discovering how to work with clay, paper, scissors, wood blocks, wire and numerous other materials. These youngsters acquire the habit of regularly coming to the museum, and their visits, which acquaint them with paintings and sculpture, leave an impression on their young minds. The museum assistants note the beginnings of observation and art appreciation among this age-group. The Behaviorists maintain that to awaken children to cultural experiences at an early age should be encouraged by all means.

Most museums provide the children with activities in this particular line through the high school age, the start being given generally at the age of seven. The museum is visited by children on Saturdays and after the school hours on week days. Sometimes they pay a small amount which entitles them to use the materials and imparts a feeling of real "ownership". The children from seven to nine years of age may join a group meeting once a week. At the Newark Museum this is known as the "Round the World Club". Its members go into the galleries to have a look at the paintings and sculpture. They may either work directly from the exhibits or fall back upon their recollections of their own creations at the Junior Gallery Workshop.

Occasionally the members of this younger group produce a play. Such group activity on their part is an excellent supplement to the individual work done in this club.

When a child reaches his tenth year, he is fit enough to work with older children. At this stage, most of the museums arrange for specialized activities for the child's development. Children interested in drawing and painting meet on certain days, those interested in sculpture meet at others. The investigations in applied arts are done through craft work. Exhibits in the museum building serve as models for all these activities. Research and reading reinforces the information and appreciation of the objects before the eyes. Occasionally living models are used, while some groups visit local zoos for animal drawing or undertake field trips for architecture and landscape studies.

As the creative faculty is developed, the children learn to follow standards set up by themselves. Guided by an assistant, they scrutinize the work done and deliver judgement on it. A child's frank and direct criticism is surely more convincing than any conventional opinion of an adult.

The older groups frequently arrange exhibitions of their own work, sometimes of collections brought from outside. Two committees, one for judgement and another for installation, are formed, a catalogue of the exhibits is prepared and published. Thus the groups create an opportunity to make themselves more intimate with the museum and more and more interested in it to the advantage of both.

The young people are encouraged to organize and conduct these activities themselves with the least possible help and assistance of the museum guides.

VIII

METHODS OF CO-OPERATION

The beauty and logic of Indian life belong to a dying past—Ananda Coomaraswamy

The few examples in the previous pages show that various attempts have been made to devise different methods of co-operation between the museums and the public in the West. The line of improvement of Indian museums has been elaborately discussed in the Report of the Museums of India by Markham and Hargreaves. It is worth noticing the conclusions of this Report in which suggestions have been made that the (i) Government of India, (ii) Provincial Governments, Indian States, Municipalities and Societies, (iii) and Curators might take immediate action on the following lines :

(i) By the Government of India.
  (a) The provision of greater financial assistance for the better museums.
  (b) The appointment of an Inspector General of Museums with European experience, for a period of at least three

years, who would train a qualified Indian officer to succeed him. The latter's training in India should be supplemented by an extensive course of study abroad.

(c) The granting of scholarships for the training of curators and the provision of opportunites and facilities for their training

(d) The provision of a new constitution for the Indian Museum to allow the appointment of a full-time keepers for each section.

(e) The revival of the Standing Committee on Museums and Museum Conferences and the provisions of funds to meet the cost of the Committee, travelling allowances involved and the necessary printing.

(ii) By Provincial Governments and States, Municipalities and Societies.

(a) The provision of more funds for good museums and the closing of useless museums.

(b) The appointment of fully qualified and active curators at adequate salary scales.

(c) The granting of scholarships for the training of curators and the granting of facilities for their training.

(d) The strengthening in every way of the connection between museums and education.

(e) The appointment of Museum Committees of influential persons interested in museums, having a knowledge of museology and prepared to give time to attending meetings and paying visits to the museum.

(f) Ensuing that the collections are catalogued and the exhibits carefully preserved and labelled, and that handbooks, catalogues and guides to the collections are prepared by the curator or other qualified persons and sold at the lowest possible price to visitors.

(g) The consideration of the question whether public museums should be set up in all towns having a population of over 100,000 persons.

(iii) By Curators, especially those in the smaller museums.

1. Decide what is to be the scope and purpose of your museum. Allocate definite rooms to definite subjects.
2. Keep rigidity to your plan and ask yourself a propose of each object : what will the visitor learn from this and the label I give it ? Exhibit nothing without the intelligent label.
3. Prevent overcrowding, and see that all labels and exhibits are clean.
4. Put rudiment specimens into store or reserve.
5. Where possible, suppliment specimens and labels by explanatory photograhy or pictures.
6. Have all textiles and other perishable specimens not only under glass, but in air-tight cases, and take adequate precautions against dust, pests and sunshine.
7. Have a quarterly inspection of all perishable specimens for any signs of pests, cracking or bleaching.
8. See that very valuable specimens are kept under lock and key, or are continually watched.

9. Keep the museum and yourself up-to-date.
10. Get your Committee really interested in the museum, and stimulate their co-operation.
11. The most noteworthy objects should be made more conspicuous and should be mentioned in a cheap general guide.
12. All exhibits should be so exhibited that they can be conveniently seen without stooping or straining the eyes.
13. In all large museums and galleries clear plans should be placed conspicuously in the entrance hall and at all central and pivot points, indicating quite clearly where the visitor is standing and how he is to find his way to other parts of the building (pp. 96-97).

* * *

Besides these recommendations, further suggestions may be offered. The Museum Committee (as mentioned in the paragraph (ii) (e) of the Report) should be responsible for practical advice and scientific guidance with regard to the various aspects of the preservation of works of art, from laboratory research to problems relating to architecture, including the organisation and equipment of exhibition galleries. This Committee will also fulfil two other essential functions : the study of the documentary materials in order to reply to the questions asked, and the collection of information of the practical achievements. When the replies are of general importance or of interest to museographical circles, they should be monographed.

Besides these museographical studies, the Committee should publish at regular intervals, detailed descriptions of certain collections and museums. These investigations will be undertaken, firstly, to inform the researchers of the documentary resources of museums in various parts, and acquaint curators with the work done by their colleagues ; secondly, to encourage these institutions by giving a certain publicity to their work.

As regards the scientific examination of works of art and the restoration of various objects, the Committee should enquire into the processes at present employed elsewhere, and which are constantly being improved by modern science.

The Committee should also deal with the problems relating to the protection of works of art in war times. The International Museums Office, as a result of its first general study on the protection of artistic treasures in Spain, is in possession of abundant and detailed documents in which these measures of protection were organised. These documents supply information of the work that had been done for this purpose in various parts of Spain during the Civil War and on the measures of protecting buildings containing works of art. The scientific methods used for the packing of museum objects can also be known through these documents. In all these cases, the processes and methods recommended by the Museums Office have been very largely adopted. It was also at its request that a systematic record was kept of the vibration caused by bombardment, or of the action of gas from incendiary bombs. A theoretical study has also been made on the protection of museums against air-raids. This study is based on the most recent data available on the resistance of materials and provides for the salvage of objects.

An article on the "Care of Works of Art in War-time" by Mr. Rawlings, of the British Museum, which appeared in "Nature" on 25th July, 1942 should be read by all who have been entrusted with public art collections. According to Mr. Rawlings : the programe of evacuation and war-time storage of valuables and perishable objects is one of avoiding the growth of mould or mildew. A relative humidity so low as 68 per cent has been found to permit of mould growth, especially at temperature around 70°F of showing that raising the temperature is not itself the security, if the relative humidity remains excessive. Good ventilation, or at least adequate air-movement, is a safeguard. Another matter concerns lighting. Some illumination is desirable as a check upon mould growth itself. In addition, for pictures less than about fifty years old, there is a tendency for the medium to turn yellow, especially if of a 'fat' nature. This process is favoured by darkness. For older paintings, oxidation is probably complete, and no colour change need be expected as the result of storage away from light, so far as the medium is concerned. Water colours and miniatures should always be stored away from light. Generally, there can scarcely be hard and fast rules, except perhaps to recollect that flooding, exposure to excessive relative humidity, attacks of mildew and no less inadequate or rough transport may bring about damage amounting almost to disaster (p. 114).

The above methods and measures for the improvement and utilisation of museums should engage the interest and attention of the public as well as scholars. Without such active interest and co-operation museum collections gradually pass into the limbo of things forgotten, museum visits becoming merely mechanical and half-hearted.

We feel inclined to believe that the word *Jadu-Ghar* or *Ajab-Ghar* which means "Magic House" is perhaps to not a small extent responsible for the present state of museums in India. The terms so used to signify these institutions can but suggest a resting house for the dead and the fossil which have rather trespassed into the present from long-forgotten past, making the whole atmosphere of their abode a source of depression, if not of consternation.

One should not forget that proper interpretation and utilisation of the museums in modern times are important stepping stones towards the progress of civilization for which we are all striving together.

APPENDICES

MUSEUM GAMES

A

A few examples of museum games are mentioned here to give an idea of popular games generally played in American museums. A·game on hats organised by the Duluth Children's Museum states :

There are many queer and interesting hats in the Museum. See how many you can find and answer these questions. In what country do the men wear stiff black hats, and long white kimonos ?——— where do the men wear little round white caps ? ———There are two bride's headdresses in the Museum. They are trimmed with many pearls and strings of beads comes from———. The other one that is red and trimmed with gold coins comes from———.

Another clue game known as "Who What or Where Am I" asks :

I am not a person, but a god. I am dancing in a temple. I have four arms. *Who* am I ?———.

or

I am a lovely blue green color. I am made of pottery and decorated with strange Arabic writing. I was made in honor of a beautiful Persian Princess. *What* am I ?———.

and

I am a lotus blossom. I am carved in wood. You will have to look up to see me. There are many blossoms together. *Where* am I ? ———.

The Buffalo Museum of Science prints for free distribution coloured game cards approximately 5″ × 7″ with the game on one side. For example :

Bird Game

1. Some nests are built on the ———, some in ——— some in ———, and some in ———.
2. The ovenbird's nest is built ———.
3. The red-winged blackbird's nest is built———.
4. The woodpecker's nest is built———.
5. The oriole's nest is built———.
6. Many materials———, ———, ———, ———, ———, ———, are used in nest building.
7. Baby birds have very stubby——— until they have been out of the nest for some time.
8. How do you know that it is the mother Redstart that is on the nest ?

   Name ____________________

and on the reverse of the card is mentioned :

Dear Children :

This game that you have just played is like the games we play in the Museum after school hour. If you have enjoyed it we invite you to join one of our regular groups which play Museum Games Monday and Thursday afternoons at 4 o'clock, and Saturday afternoons at 2 o'clock.

We would also like to have you join our study courses where you will learn about minerals, flowers, animals, stars, Indians and birds. Come over and see us about it.

In our Library are many interesting books for children about all these things, and you are invited to come in after school any afternoon or any time on Saturday to read them.

Why don't you bring your Father and Mother with you to the Museum ? Tell them it is open weekday evenings from 7 to 10 except Saturday evening, and on Sundays from 1 to 5-30. On these evenings and on Sundays children are not admitted unless they are with older people.

Tell your younger brothers and sisters about our Saturday morning Story Hours for children between six and ten years of age. These are held at 10-30 o'clock.

BUFFALO MUSEUM OF SCIENCE
Humboldt Park, Jefferson 10,000

SUGGESTION FOR MUSEUM LECTURES

B

Lecture-demonstrations

1. How to use the Museum. 2. The Clothes of our Ancestors. 3. The Story of Furniture. 4. The Story of the Potter. 5. The Evolution of the Ship. 6. Book and Book Illustration. 7. Woven materials and Costume. 8. Block printing and Cotton prints. 9. Pottery and Metal work. 10. The Elements of Design. 11. Design in Woven Work. 12. Design in Pottery. 13. Border Decoration. 14. Design in Furniture. 15. Design in Metal work. 16. Form and design in glass. 17. Design in Carving in Wood and Ivory. 18. Practical Designing. 19. The Beginning of Art. 20. Silk Production and Weaving. 21. Embroidery. 22. Picture Appreciation. 23. Art as affected by History and Geography. 24. Colour in Nature and Art. 25. The Story of Building Houses, Temples, Pyramids, etc 26. The Religion of Primitive Peoples. 27. What Magic can do ? 28. How Fire is made ? 29. History of Kitchen Utensils. 30. Lettering and Writting. 31. What Currency is—and how money came

into use. 32. Tools and Weapons. 33. The Peoples of India—their racial history. 34 The Peoples of Europe. 35. The Peoples of Asia. 36. The Peoples of Africa. 37. The Peoples of America. 38. The Peoples of Australasia. 39. Man in the Old and New Stone Ages. 40. The Arts and Crafts of Prehistoric Men. 41. The Art of the Cave Men. 42. The Palæolithic Culture. 43. The Neolithic, and Bronze and Iron Age Culture. 44. The Art of Busket-making. 45. Agriculture and Food. 46. Decorative Art. 47. The Industrial Revolution. 48. Art and Industry. 49. Hunting and Fishing. 50. Printing. 51. Mining. 52. Dolls and Toys. 53. Sport in General. 54. Life in Ancient Sumeria. 55. Life in Ancient Egypt. 56. Life in Ancient Babylonia. 57. Life in Ancient Greece. 58. Life in Ancient Rome. 59. Life in Ancient India. 60. Life in Ancient China. 61. Origins of Architecture. 62. Byzantine and Medieval Craftsmen. 63. Evolution in Domestic Arts and Crafts. 64. The Story of Travel and Transport. 65. The Story of Ornaments. 66. Digging and Ploughing the Soil. 67. Traces of Early Man. 68. Stone Age Peoples of To-day. 69. Arts and Crafts in

Ancient Egypt. 70. Arts and Crafts in Ancient India. 71. Arts and Crafts in Ancient China. 72. The Beginnings of Indian painting. 73. The Beginnings of Italian painting. 74. Japanese Art and History. 75. Dutch Landscape and Genre. 76. Spanish Painting. 77. German Painting. 78. French Painting. 79. English Portraiture. 80. Design by line. 81. Design in Three Dimensions. 82. Design by Light. 83. Design by Colour. 84. Religious Subjects. 85. Classical Subjects. 86. Evolution in Art. 87. The Meaning of Art. 88 The Culture of Cities. 89. The Social value of Art. 90. Art in Everyday Life. 91 The Film Industry. 92. The Ancient Art and Ritual. 93. Child Expression in Colour and Form. 94. Modern Art. 95. Prehistoric Rock Pictures. 96. The Expanding Universe. 97. The Historical Development of Road Transport. 98. The History of Aeronautical Development. 99. The Historical Development of Rail Transport. 100. The Historical Development of Hand and Machine Tools. 101. The History of Marine Engineering Development. 102. Driving Power through the Ages. 103. Astronomy and Time. 104. Meteorology. 105. Photography and Kinematography.

106. Calculating Instruments. 107. Electricity and Magnetism. 108. Electricity, its Generation, Transmission and Applications. 109. Electrical Communication ; Telegraphy, Telephony and Radio Transmission. 110. Chemistry. 111. Animals of the Deserts. 112. Mammals of the Deep. 113. Life within the Arctic Circle. 114. Pond Life. 115. Freshwater Aquaria. 116. Life in the Hive. 117. Simple Aquatic Life. 118. Animals that Fly. 119. Animals in Travel and Transport. 120. Tree-climbing Animals. 121. The Man-like Apes. 122. Defences of Animals. 123. Birds' Eggs. 124. Animals in Winter. 125. Insect Life. 126 A talk about snakes. 127. The Colours of Butterflies. 128. Birds which do not fly. 129. Birds and their Nests. 130. The North American Indian. 131. The South African Pigmies 132. The Peoples of South Sea Islands. 133. The Japanese at Home. 134. Mohammedan Peoples. 135. The Jews. 136. The Maories of New Zealand. 137. Papuans of New Guinea. 138. Aborigines of Australia. 139. The Eskimo. 140. Volcanoes and Earthquakes. 141. Deserts. 142. The Action of Ice. 143. Rivers and their action. 144. Canes.

145. Coal. 146. Popular Tales for Young People. 147. Digging of the Past. 148. Art and Education. 149. The Science and Technique. 150. Anatomy and Sex.

How a museum sends out invitation for lecture-demonstrations —an example of the Academy of Natural Sciences in Philadelphia :

Talk : How Seeds Leave Home

To the Teacher :

The Museum Talk, How Seeds Leave Home, consists of the meeting of a single class in a museum class-room. Here the topic is introduced by the museum teacher or docent and the pupils join in group discussion. The talk is illustrated with a variety of specimens of seeds, charts and colored lantern slides. Although it is sufficient as a single unit, the Talk is designed to supplement the work in the school. For that reason the teacher is urged to give the pupils some brief preparation, using the accompanying outline. It is hoped that after their visit to the Museum, both teacher and pupils will have the opportunity of using the material of the Museum Talk as a follow-up assignment in their own class-room.

What the Lesson will cover

I. Seeds and Seed Houses :
  1. Seeds are the plant's children.

2. A typical seed has three parts :—
   (a) Seed-coat-covering (b) Embryo-miniature plant (c) Stored-up food.
3. Seeds are encased in houses :—
   Examples
   (a) Acorn-oak (c) Pod-bean
   (b) Bur-chestnut (d) Shell-nuts

II. Importance of seeds, etc.

At the bottom are "References" on the subject.

Such questions as the following are asked by the Cleveland Museum of Art after a visit to its Egyptian Gallery :

1. How did the Museum help you to answer the following questions ?
   (a) Did you see anything that tells one way in which the Egyptians travelled ?
   (b) What did you see that proves the Egyptians passed through a stone age ?
   (c) What did you see that proves the Egyptians passed through a bronze age ?
   (d) How are the legs of an Egyptian chair different from those in your school room ?
   (e) Did the Egyptians have barbers ?
   (f) What is a scarab ?

   Answer as many of these questions as you like by drawing.

2. From what you saw in the Museum, tell some of the kinds of work you would have done if you had been an Egyptian laborer. Draw any scenes illustrating this work that you can. Draw them as you would if you were an old Egyptian artist.
3. From what you saw, tell some of the kinds of things you would have made if you had been an Egyptian craftsman, that is, skilled in hand and trained for a particular trade. You might draw these things or make them from clay, plasticene, or any other materials that you like to use.
4. Write a list of things you would find in a Cleveland jewellery store. Then make a second list of the kinds of jewelry you saw in the Egyptian Gallery. Draw as many pieces of Egyptian jewelry as you can remember. If you find that you do not remember as much as you want, consult photographs and books.
5. What materials did an Egyptian scribe use ? How is the form of an Egyptian book different from ours ? If you have had a lesson in hieroglyphies perhaps you could write some words in the way the scribe did in his books.
6. If you had been an Egyptian potter how would you have described to your customer the way in which you made clay pots and stone pots ? Can you draw shapes that would have tempted an old Egyptian to buy ? Can you model them in clay or plasticene ?

THE PAST IS STILL ALIVE IN YOUR DISTRICT

Here are some questions that will help you to discover

C

1. What customs and beliefs are observed in each calendar month ?
2. What ceremonies are performed during the agricultural operation in your district ?
3. What products are assembled during the annual fairs held in your district ?
4. What folk-dances are danced and are there any folk-plays especially mask-dramas acted ?
5. How many games do you play in your district ?
6. Why potteries are painted and how they are fashioned ?
7. Is any historical event such as a battle connected with your district ; and if so,

what tales are told and what names are given ?

8. Are any stories current in your district that anything to do with the temple or mosque ?

9. Do you know of any legends or belief connected with any wells or pools, with a river, or stream ?

10. Are any special classes of people engaged in special industries and are they hereditary ?

11. Do you have any traditions or stories as to the use of metals ?

12. What are the explanations of the origins of designs ?

13. What are the techniques employed in dolls and toys ?

14. What are the customs observed during marriage ceremony ?

15. How many varities of songs sung in your district during festivals and other ceremonies ?

16. Do you have any special meaning for a particular colour in your district ? Are some colours considered to be auspicious ? and why ?

17. Are images of gods and goddesses made and worshipped ? What are the current stories about the significance of many hands or heads of a deity ?

18. What are the objects regarded as sacred in your district ? What ceremonies are observed in connection with them ?

19. What are the customs observed at building or temple or mosque ? How are the foundations laid ?

20. How are the houses arranged in your district ? Can you explain the shape and materials used for these buildings ?

21. Are there pictographic marks in any design ? Give the vernacular names for each mark.

22. Are special sets of words used by the artisans in making handicrafts ?

23. What do you mean by the word tradition ?

Are there any traditions and can you trace the origins of customs and beliefs ?

24. Are the names of art objects vary with the nature of their designs ? and why ?

25 Do the women use different words from the men for different objects of arts and crafts ? Explain.

POSTSCRIPT

*HINTS ON THE PRESERVATION OF ANTIQUITIES**

Many of the antiquities discovered during excavations are found to have undergone profound alterations or deterioration as a result of the chemical and physical changes which have taken place in them during the long period of their burial in the soil. Generally, their original form and details are obscured or obliterated more or less and the fabric itself is considerably weakened. The nature and extent of these transformations depend on the composition of the material, character of the soil and age of the site. Even after their exhumation they are susceptible to further deterioration under the action of atmospheric influences. Some of the objects begin to disintegrate soon after exposure to the air, others

* Summary of lectures given by the Archæological Chemist of the Archæological Survey of India to the Training School of Archæology at Taxila, 1944-45.

might remain apparently unaffected for weeks or longer; but once the signs of deterioration manifest themselves, further destructive changes proceed apace. It is therefore very important to undertake suitable preservative measures without any unnecessary delay. Moreover, before an object can be studied properly, its original form and details must be restored, as far as possible. * * * *

For the purpose of the preservative treatment, antiquities can conveniently be grouped as follows:

SILICEOUS AND CALCAREOUS MATERIALS

(a) Terra-cotta or pottery, stone, faience, stucco, gypsum, glass, enamel and minerals;

(b) Metals:—Iron, copper and its alloys, lead, silver and gold;

(c) Organic substances:—Wood, paper, birch-bark, linen, silk, horn, leather, bone, and ivory.

(a) POTTERY, STONE, FAIENCE, ETC.

Of all the antiquities found during excavations, terra-cotta or pottery is the most abundant and well preserved; but being porous they are impregnated with salts derived from the soil. Variations in temperature and the humidity of the atmosphere cause these salts (chlorides sulphates and some times nitrates, of alkalies, lime and magnesia) to crystallize out or to go into solution again within the pores. The repetition of these processes causes the disintegration of the objects. It is, therefore, important that the objects should be freed from the injurious salts immediately after their exhumation, by repeated steeping in plain water. This simple treatment is applicable to all the objects belonging to group (a) above.

Before an object is steeped in water, it should be carefully ascertained that this treatment will not harm it in any way. The best plan is to place a few drops of water on the object and see if it produces any harmful effects. All objects which are likely to be injured by contact with water should be sent to the Archæological Chemist for necessary treatment. The details of the STEEPING PROCESS are as follows :

Very small antiquities are washed by suspension in deep glass or porcelain vessels containing water. Ordinarily the steeping is carried out in spacious gulvanized iron tubs or tanks of suitable sizes and provided with a wooden grating which rests firmly half way down the sides of the vessel. The objects (which have already been marked with Brunswick black paint) are placed on the wooden grating and the vessel is flushed with water, covering the objects entirely. A careful record of the contents of each tub is kept in a note-book. The water used for this purpose should be free from saline impurities. It is not generally possible on the sites (like Mohenjo-daro and Harappa) where the soil is heavily charged with salts, to get sufficiently pure water for this purpose. Therefore, arrangements should be made, at the outset, to get all available supplies of water chemically tested for their purity by the Archæological Chemist, and the purest one should be utilized for this purpose.

After the objects have been soaked for a day or so, they are taken out one by one, freed from mud and incrustations, with the aid of a knife or brush, and immersed again in a fresh supply of water. Hard calcareous incrustations can be removed by immersion in, or application of 3 per cent muriatic acid. Gypsum crystals generally fall off, or can be chipped off, in the course of the steeping, but difficult case will require burning treatment, in a muffle-furnaces. Whether these side treatments are necessary or not, the steeping in water is continued until the objects are free from the injurious salts. The water is changed daily in the first week, twice in the second, and weekly subsequently.

The progress of the washing operation is judged by testing chemically the wash-water for its salinity. It is generally sufficient to test for the chlorides only by silver nitrate solution as these are invariably present with other salts in the soil. The SILVER NITRATE TEST is carried out thus :

Two clean test-tubes of the same size are half filled, one with pure water from the supply and the other with the wash-water. To each of these tubes are added ten drops of silver nitrate solution* and the tubes are shaken. A white precipitate or milkiness is produced which varies with the amount of the chlorides present in the water. If the supply of water is sufficiently pure the milkiness produced in it will be slight. In the first week the difference in the milkiness is very marked, but it becomes less subsequently, indicating the gradual elimination of the injurious salts. The washing is continued until the milkiness produced in both the waters is the same. This signifies that the objects have been washed free from the salts. If the objects were charged heavily with sulphates, the washings in the final stages should also be tested with 5 per cent solution of barium chloride acidified with hydrochloric acid. A white precipitate indicates the presenee of sulphates. For objects of special value, a final washing should be done with distilled water.

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* The silver nitrate solution is prepared by dissolving 5 gms. of silver nitrate crystals in 500 c. c of distilled water followed by 10 c. c. of strong nitric acid. This should be kept in a brown stoppered bottle.

When the objects have been freed from the salts, they are dried, large objects are dried by exposure in the air but small ones should be dried in a hot-air oven, at 80°-100°c. for a few hours. Subsequently they are repaired or impregnated, as necessary.

Special Cases :—Ordinary pottery and terracotta stand the washing treatmet well, but special precautions have to be taken if these objects are covered with painted designs or colours. In such cases the surface should be freed carefully of all adhering mud etc. and the painted designs coated with 5 per cent vinyl acetate solution in order to fix the colours, before placing the objects in water.

Unbaked clay can not obviously withstand the action of water. It should be allowed to dry in the shade and be impregnated with 10 per cent vinyl acetate solution or hard paraffin wax which is melted and applied hot by means of a brush. If the object is charged with salts then the best plan is to keep them in dessicator jars ; or it should be baked and thus rendered fit for steeping in water to eliminate the salts.

It should be noted that limestone, marble and certain other varieties of stone are affected by acids. Gypsum and alabaster are slightly soluble in water but this drawback can be remedied by the use of water saturated with calcium sulphate for the steeping operation. This can be prepared readily by shaking plaster of paris in a tub of water, allowing the surplus plaster to settle down and using the supernatant water.

Heavy stone sculptures require several months or even longer for the complete elimination of salts by steeping. Therefore, it is more convenient to treat them by the paper-pulp method which is carried out as follows :

Paper-pulp Treatment :—Sheets of paper-pulp are torn up into small pieces and soaked in a tub of hot water for 24 hours. The mass is stirred well by means of wooden sticks until it is thoroughly disintegrated and assumes the consistency of thin porridge. Handfuls of the pulp are taken out and applied to the salt-affected surface until a coating ½″ thick is built up all over it. When it has dried off completely, it is removed and fresh coating applied to the surface. This process is repeated until a specimen of the dried pulp is found free from salts. This is ascertained by shaking the specimen with distilled water in a flask and testing the clear extract by the silver nitrate test.

Repairs and Impregnation after treatment : The materials generally employed in our laboratories now for the repairs and impregnation of pottery and terra-cotta are shellac and vinyl acetate resin. The shellac should be of the best orange flaks quality and is dissolved in rectified spirit to form a thick solution. The shellac solution should be applied to both the edges by means of a small pointed round brush and the excesss queezed out by pressing the parts together. The joint should be cleaned up immediately and the object left to dry in proper position so that the parts do not tend to fall apart in the meanwhile. Coarse pottery with worn out edges can be repaired better by the use of solid shellac. The edges should be rendered sufficiently hot (by pressing over a spirit flame) before the application of shellac. For the the restoration of large vessels much experience and skill are necessary.

Vinyl acetate resin should be dissolved in a mixture of alchohol (rectified spirit) and toluene (50 : 50). 20 per cent strength is useful as a cement, but 5 and 10 per cent solution are required for the impregnation of decayed objects.

Repairing stone objects :—Small stone objects can be repaired by the use of shellac or vinyl acetate cements. Heavy objects of stone can be joined best by Sorel cement which consists of (a) calcined magnesia and (b) concentrated solution of magnesium chloride. These ingredients, (a) and (b) are mixed when required, together with powdered stone and applied to the broken faces. The object is then held together firmly for two or three days to allow the cement to set hard.

METALS

The treatment of metallic objects is a complicated problem requiring sufficient chemical knowledge besides considerable practical experience. However, some simple and safe methods are given here which may prove handy to the excavator.

Copper and its Alloys :—An efficient and safe formula for the cleaning of copper and its alloys is given below :

Tartaric acid	...	1 part
Caustic soda	...	1 part
Water	...	10 parts

The objects should be kept in this mixture until all the green incrustations have been dissolved away leaving the liver red core behind. The objects should then be washed thoroughly in several changes of water, and finally coated with 10 per cent vinyl acetate solution.

Silver :—Coins and objects of silver debased with copper can be cleaned by 3 per cent sulphuric acid until free from all red spots of copper oxide. Finally the coins are washed well in water. Silver coins of the purer metal which are tarnished superficially can be cleaned by immersion in very dilute amonia or dilute formic acid.

Iron :—It is not possible to carry out the proper treatment of iron objects (which are generally in an advanced state of oxidation) in the field. They should be steeped in water to remove adhering mud and salts, as far as possible, and sent to the Archæological Chemist for further treatment.

Gold :—Objects need only washing with plain water.

Lead :—Objects of superficially oxidised lead can be cleaned by wrapping with strips of zinc sheets and leaving them for a few hours in 5 per cent caustic soda solution. Then the objects are transferred to 2 per cent sulphuric acid solution until free from zinc.

Finally, they are washed in boiled water, dried and coated with 10 per cent vinyl acetate.

ORGANIC MATERIALS

Bone and Ivory :—Objects of bone and ivory are generally found in very fragile condition and disintegrate rapidly on drying. In saline areas these objects may be reduced to powder in a day or two after their excavation. It is, therefore, necessary to strengthen them *in situ* and carry out their treatment immediately. Better-preserved objects should be secured at the outset by winding a thin cotton string repeatedly all round them (to prevent splitting or any loose fragments from falling off) and immersed in water to wash out the salts completely. Then dry in the hot-air oven and impregnate with 10 per cent vinyl acetate solution. The objects are wiped clean and allowed to dry overnight. The cotton-string windings are now removed carefully, moistening with a little toluene, and the surface freed of any adhering incrustations and excess of the preservative, by scraping with a knife or file.

The proper handling of *Skeletal Remains* requires some experience and careful manipulation. In the case of burials all the bones have to be exposed completely along with the associated pottery etc,* and kept undisturbed until the photographs or sketches have been taken. Therefore, the bones will have to be strengthened *in situ* immediately, after their exposure, by the application of 10 per cent vinyl acetate solution or thin shellac solution. When the soil is excessively saline the bones should be treated with paper-pulp (to remove the salts) before impregnation with these preservatives. When necessary records and photographs have been taken, the bones will have to be strengthened further by pasting strips of paper or linen over them ; otherwise, they are liable to break up when lifted up from the ground. The other side of the objects should also be treated similarly after their removal.

Thin ivory specimens will need a sufficiently strong support to prevent damage. Therefore further reinforcement may have to be provided by means of plaster of paris, with wooden bars embedded in it.

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* To preserve the pottery against disintegration due to the presence of salts, it should be coated freely with glycerine and water (1 : 1) mixture.

Textiles, Paper, etc. :—Textiles and paper should be freed from the injurious salts by pressing between wet sheets of blotting paper, several times; while adhering mud, etc., is being removed simultaneously by means of a soft round brush.

Old Birch Bark can be rendered pliable by exposure to steam; by suspension (on a wire gauze stirrup) in a vessel in which water is kept boiling. After two minutes the specimen is taken out and immediately pressed flat between two sheets of blotting paper.

Objects of *Wood* are generally found in a highly decayed and fragile condition. Utmost care is necessary in drying damp wood freshly dug from the soil as it is liable to split up, warp, or be destroyed altogether on exposure to the air. It is therefore advisible to embed the specimens in a thick layer of wet sawdust or moss and send them on to the Archæological Chemist immediately for suitable treatment. Wood from saline areas must be treated with paper-pulp immediately for the elimination of the salt. Dry wood should be impregnated with 10 per cent vinyl acetate or hard paraffin wax.

Fumigation :—All objects of organic origin must be fumigated with thymol or carbon disulphide to destroy bacteria or insects that might be present in them.